New York ISO
Independent System Operator

Updates on NYISO's Comprehensive System Planning Process

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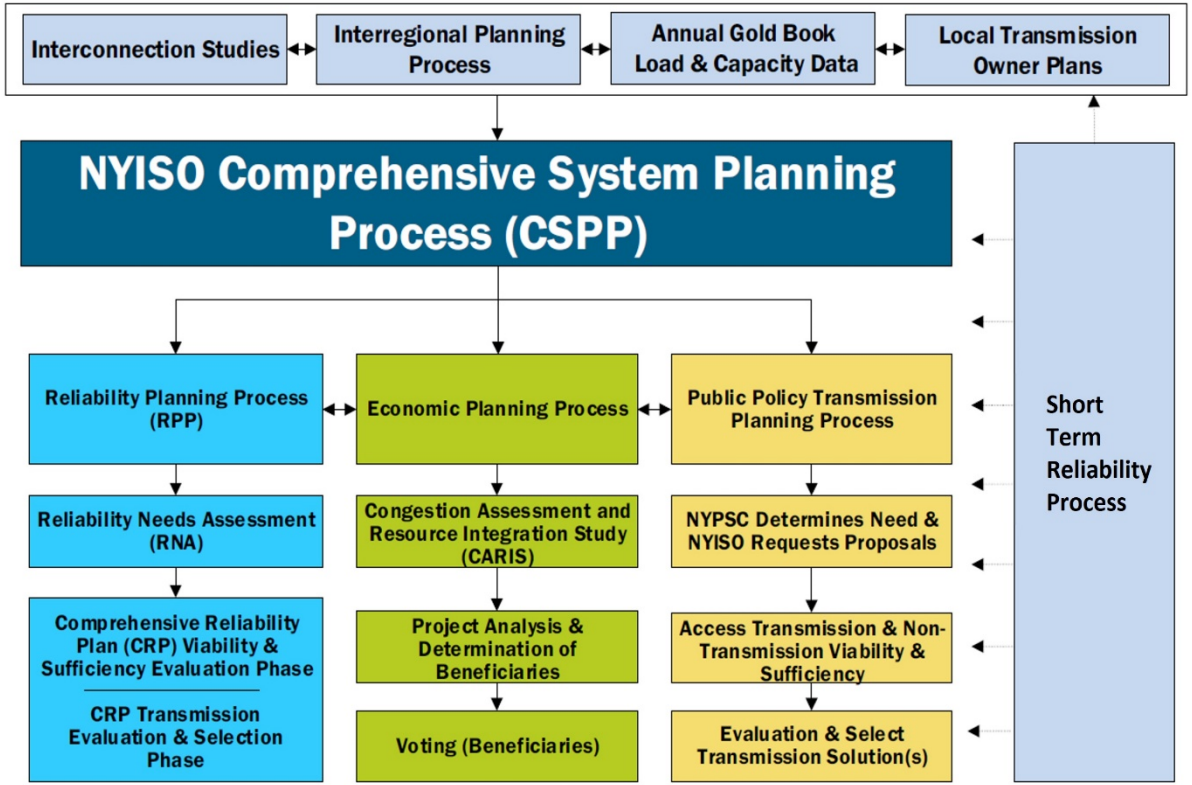
Interregional Planning Stakeholder Advisory Committee (IPSAC) Meeting

June 4, 2021



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Reliability Planning Process (RPP)

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Reliability Planning Process

- **Two-year process starting in even years**
- **Reliability Needs Assessment (RNA)**
  - Evaluates the adequacy and security of the Bulk Power Transmission Facilities over a seven-year Study Period (years four through ten of the next ten years), and identifies Reliability Needs
  - Reliability Needs are defined as violations of Reliability Criteria (*i.e.,* NERC, NPCC and NYSRC)
- **Comprehensive Reliability Plan (CRP)**
  - Develops a plan to satisfy the Reliability Needs identified in RNA, if any
  - Identifies risks to the plan, and could include additional scenarios simulated for informing the risks

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2020 Reliability Needs Assessment

- **Incorporates impacts of Peaker Rule into base case reliability analysis.**
  - New York State Department of Environmental Conservation (DEC) adopted a regulation to limit nitrogen oxides (NOx) emissions from simple-cycle combustion turbines ("Peaking Units") (referred to as the "Peaker Rule")
  - The Peaker Rule required all impacted plant owners to file compliance plans by March 2, 2020
- **Includes a scenario evaluating the impacts of 70 percent of energy produced from renewable resources by 2030 ("70 by 30") for both Transmission Security and Resource Adequacy.**
- **Final 2020 RNA report is available.**
  - The 2020 RNA has identified violations or potential violations of reliability criteria ("Reliability Needs") in the base case throughout the entire study period (2024-2030) due to dynamic instability, transmission overloads, and resource deficiencies. The issues identified are primarily driven by a combination of forecasted peak demand and the assumed unavailability of certain generation in New York City affected by the "Peaker Rule"

https://www.nyiso.com/documents/20142/2248793/2020-RNAReport-Nov2020.pdf

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Existing transmission facilities modeled out-of-service

- Con Edison's B3402 and C3403 345 kV cables with no return date
- Moses-St. Lawrence L33P through fall 2022

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Proposed Projects Included in the 2020 RNA Base Case

Queue #	Project Name	Zone	Point of Interconnection	Summer Peak (MW)	2020 RNA Commercial Operation Date
Proposed Transmission Additions, other than Local Transmission Owner Plans					
Q545A*	Empire State Line	A	Dysinger - Stolle 345kV	n/a	6/2022
556	Segment A Double Circuit	E,F	Edic - New Scotland 345kV	n/a	12/2023
543	Segment B Knickerbocker-Pleasant Valley 345 kV	F,G	Greenbush - Pleasant Valley 345kV	n/a	12/2023
430	Cedar Rapids Transmission Upgrade	D	Dennison - Alcoa 115kV	80	10/2021
System Deliverability Upgrades*	Leeds-Hurley SDU	F,G	Leeds- Hurley SDU 345kV	n/a	summer 2021
Proposed Generations Additions					
387*	Cassadaga Wind	A	Dunkirk - Moon Station 115 kV	126.5	12/2021
396	Baron Winds	C	Hillside - Meyer 230kV	238.4	12/2021
422	Eight Point Wind Energy Center	B	Bennett 115kV	101.8	12/2021
505	Ball Hill Wind	A	Dunkirk - Gardenville 230kV	100.0	12/2022
546	Roaring Brook Wind	E	Chases Lake Substation 230kV	79.7	12/2021
678	Calverton Solar Energy Center	K	Edwards Substation 138kV	22.9	12/2021
			MW Additions from 2019-2028 CRP	543	
			Total MW generation additions	669	

*also included in the 2019-2028 CRP Base Cases

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Post-RNA Base Case Updates

- **Load forecast update.**
  - Zone J peak load forecast decreased by 392 MW in 2030 https://www.nyiso.com/documents/20142/17044621/LT-Forecast-Update.pdf
- **Con Edison LTP updates.**
  - Three new 345/138 kV PAR controlled 138 kV feeders: Rainey – Corona, Gowanus – Greenwood, and Goethals – Fox Hills https://www.nyiso.com/documents/20142/18681129/2019_LTP_Coned.pdf
- **STRP solution for addressing the 2023 short-term need identified in the 2020 Q3 STAR.**
  - Seven (7) ConEdison Series reactors assumptions status changes starting summer 2023 through 2030 https://www.nyiso.com/documents/20142/15930753/2020-Quarter-3%20Short-Term-Reliability-Process-Report-vFinal3.pdf

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Post-RNA Base Case Observations

- Transient voltage response issues on Con Edison's system: non-BPTF from 2025 to 2030; BPTF begins in 2029.
  - Con Edison will address the violations with a Corrective Action Plan https://www.nyiso.com/documents/20142/20255668/03%202020-2021RPP_PostRNABaseCaseUpdates_Dynamics.pdf
- With ConEdisons's corrective actions addressing the non-BPTF violations, there are no remaining BPTF Reliability Needs in the 2020 RNA, and the NYISO will not solicit solutions in the 2020-2021 cycle of the Reliability Planning Process.
- The NYISO will proceed to develop the Comprehensive Reliability Plan for stakeholder review later this year.

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Generator Status Update

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Generator Status Update

Generator Status Updates from March 15, 2020 through April 1, 2021

Generating Unit	*Zone*	*Current Generator Status*	*Date of Generator Status Change, if applicable*	*Initial Testing Date, if applicable*	*Generator Deactivation Assessment/Short-Term Assessment of Reliability Start Date, if applicable*	*Generator Deactivation Assessment/Short-Term Assessment of Reliability Completion Date, if applicable*	*PSC Retirement/Mothball Notice Date, if applicable*	*Proposed Retirement/ Mothball Date, if applicable*	*Rescinded Notice Date, if applicable*	*Notes*
Cayuga 1	C	Retired	06/04/2020		03/02/2020	04/08/2020	2/17/2020	*5/17/2020		*Pending PSC approval Per the NYISO's Generator Deactivation Process, the earliest date on which the Generator might retire is 06/01/20.
INDIAN POINT__2	H	Retired	04/30/2020		11/13/2017	12/13/2017	10/30/2019	04/30/2020		
INDIAN POINT__3	H	In Service			11/13/2017	12/13/2017	10/30/2019	04/30/2021		
KINTIGH____	A	Retired	03/31/2020		12/12/2019	03/04/2020	11/15/2019	02/15/2020*		*Per the NYISO's Generator Deactivation Process, the earliest date on which the Generator might retire is 03/12/2020.
Cayuga 2	C	Retired	06/04/2020		03/02/2020	04/08/2020	02/17/2020	*5/17/2020		*Pending PSC Approval Per the NYISO's Generator Deactivation Process, the earliest date on which the Generator might retire is 06/01/2020.
West Babylon 4	K	In Service			04/23/2020	06/19/2020	01/23/2020	12/12/2020		
Glenwood GT 01	K	In Service			07/15/2020	10/13/2020	03/16/2020	02/28/2021		
Dahowa Hydroelectric	F	In Service	04/30/2020							
Albany LFGE	F	ICAP Ineligible Forced Outage	07/01/2020		07/15/2020	10/13/2020				On July 12, 2019, the NYISO deemed complete a Generator Deactivation Notice for the Retirement of Albany LFGE. The Generator Deactivation Assessment for the Retirement of this unit was completed on September 20, 2019 and concluded that a Generator Deactivation Reliability Need was not identified. On July 1, 2020 this unit was placed on IIFO.
HUDSON AVE_GT_3	J	In Service	07/10/2020							

Status of generators is reviewed and updated on a monthly basis:
https://www.nyiso.com/ny-power-system-information-outlook?folderPath=public/planning/NY-Power-System-Information-and-Outlook/Generator-Status-Updates

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Generator Status Update Continued

Generator Status Updates from March 15, 2020 through April 1, 2021

Generating Unit	*Zone*	*Current Generator Status*	*Date of Generator Status Change, if applicable*	*Initial Testing Date, if applicable*	*Generator Deactivation Assessment/Short-Term Assessment of Reliability Start Date, if applicable*	*Generator Deactivation Assessment/Short-Term Assessment of Reliability Completion Date, if applicable*	*PSC Retirement/Mothball Notice Date, if applicable*	*Proposed Retirement/ Mothball Date, if applicable*	*Rescinded Notice Date, if applicable*	*Notes*
LACHUTE__HYDRO	F	In Service	1/15/2021							
GOWANUS_GT1_8	J	ICAP Ineligible Forced Outage	2/1/2021							
CASSADAGA_WT_PWR	A	In Service	4/1/2021							
Ravenswood GT 2-1	J	Retired	4/1/2021		4/1/2018		3/21/2018			
Ravenswood GT 2-2	J	Retired	4/1/2021		4/1/2018		3/21/2018			
Ravenswood GT 2-3	J	Retired	4/1/2021		4/1/2018		3/21/2018			
Ravenswood GT 2-4	J	Retired	4/1/2021		4/1/2018		3/21/2018			
Ravenswood GT 3-1	J	Retired	4/1/2021		4/1/2018		3/21/2018			
Ravenswood GT 3-2	J	Retired	4/1/2021		4/1/2018		3/21/2018			

Status of generators is reviewed and updated on a monthly basis:
https://www.nyiso.com/ny-power-system-information-outlook?folderPath=public/planning/NY-Power-System-Information-and-Outlook/Generator-Status-Updates

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Local Transmission Owner Plans (LTP)

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Local Transmission Owner Plans (LTP)

- The NYISO's Comprehensive System Planning Process (CSPP) begins with the Local Transmission Owner Planning Process (LTPP). The LTPP allows interested parties to examine the transmission system plans of each of the New York Transmission Owners individually.
- Local Transmission Owner Planning Process (LTPP) link:
  - https://www.nyiso.com/documents/20142/3632262/Local-Transmission-Owner-Planning-Process-LTPP.pdf
- 2021 Load and Capacity Data Report (Gold Book) containing BPTF LTPs and firm non-BPTF LTPs (Section VII)
  - https://www.nyiso.com/documents/20142/2226333/2021-Gold-Book-Final-Public.pdf

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Short-Term Reliability Process (STRP)

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Short-Term Reliability Process (STRP)

- The STRP uses quarterly Short-Term Assessments of Reliability (STAR) studies to assess the reliability impacts of generator deactivations on both BPTF and non-BPTF transmission facilities, in coordination with the responsible transmission owner(s)
- The STAR is also used by the NYISO, in coordination with the responsible transmission owner(s) to assess the reliability impacts of other system changes on the BPTF
- Each STAR assesses a five-year period with a particular focus on needs that are expected to arise in the first three years of the study period
  - Needs that arise in years four or five may be addressed in the STRP or RPP
- Short-Term Reliability Process webpage:

  https://www.nyiso.com/short-term-reliability-process
  - Since FERC acceptance of the STRP the NYISO has completed the STRP for Quarter 3 2020, Quarter 4 2020, and Quarter 1, 2021

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Short-Term Reliability Process (STRP)

- **2020 Quarter 3 STAR**
  - The NYISO observed needs on the BPTF starting in summer 2023 and increasing in scope and scale through 2025
    - The dynamics needs were observed as early as summer 2023 and were addressed through the STRP
      - See "Short-Term Reliability Process Report: 2023 Near-Term Reliability Need Solution Selection" (link)
    - Steady state needs were observed in year 2025 and are addressed through the RNA
- **2020 Quarter 4 STAR**
  - Due to the timing of the solution solicitation and evaluation of the viability and sufficiency of those solutions there were no changes to the reliability findings from the Quarter 3 STAR
- **2021 Quarter 1 STAR**
  - Study assumptions for this assessment included the post-RNA base case updates (see slide 6)
  - This assessment did not identify any needs

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Economic Planning Process (EPP)

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Economic Planning Process

- **Two-year process: Congestion Assessment and Resource Integration Study (CARIS)**
  - **Phase I: Study Phase**
    - Performed in alternate years to the RNA
    - Determine three top congested locations in NYCA
    - Develop generic solutions – transmission, generation, demand response, and energy efficiency
    - Provide information to developers and marketplace
  - **Phase II: Specific Project & Additional Studies**
    - Specific Projects
      - Transmission projects seeking regulated cost recovery under NYISO Tariff
      - Eligibility threshold: Cost over $25M, benefit/cost ratio over 1.0, load payment saving over cost, 80% beneficiary vote
    - Additional CARIS Studies
      - Assumptions and scenarios customizable
      - Confidential except for basic information

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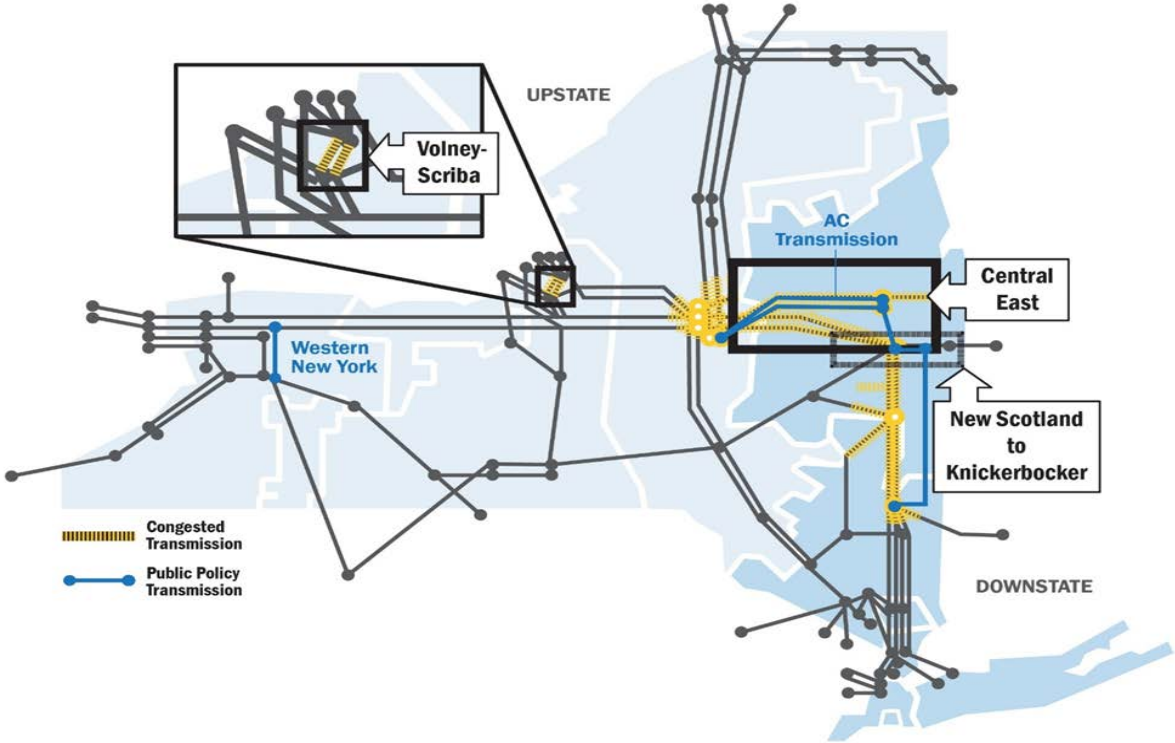
2019 CARIS Phase 1: Congestion Groupings



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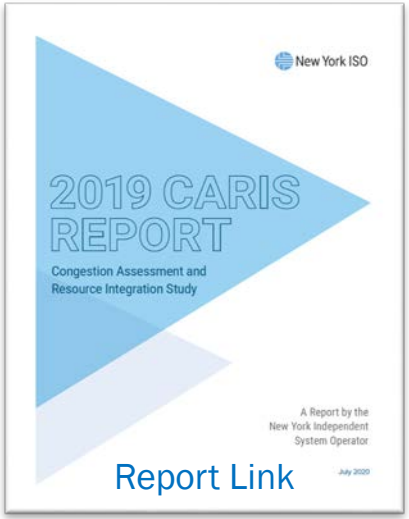
Status of CARIS

- **The 2019 CARIS Phase 1 Final Report**
  - Presented to the Management Committee (MC) on July 1, 2020
  - Approved by the NYISO Board on July 24, 2020
- **Top three congested groupings:**
  - Central East Interface
  - Central East – New Scotland – Knickerbocker 345kV
  - Volney – Scriba 345kV
- **A scenario studying 70% of NY energy consumption from renewables by 2030 (70x30) is included**
- **The NYISO finalized the 2020 CARIS 2 base case which was presented at the January 13, 2021 Business Issues Committee (BIC).**

https://www.nyiso.com/documents/20142/18307686/5%20Updating%20and%20Extending%20the%202019%20CARIS%20Database%20for%20Specific%20Project%20Evaluation.pdf



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Economic Planning Process Changes

- **The NYISO staff recognizes the limitations of the existing process, and proposes to streamline the approach and expand the scope to provide a more comprehensive analysis of the rapidly changing New York energy landscape. The revisions include changes to:**
  - provide useful information to market participants, developers, and policymakers regarding the transmission system's ability to efficiently deliver energy from the future generation resource mix to the forecasted load across the state;
  - expand the assessments to cover a more meaningful study period of 20 years consistent with the study period for any proposed transmission projects in the Economic or Public Policy Planning Processes; and
  - remove overly restrictive language that requires much labor by NYISO staff for fairly little value, such as the evaluation of generic solutions to the same "top three" congested paths each cycle.
- **FERC issued an order accepting NYISO's Section 205 filing for tariff revisions, effective April 11, 2021.**

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Economic Planning Study Name Changes

- ~~Congestion Assessment & Resource Integration Study (CARIS)~~
  - ~~Phase 1 – Study Phase~~
  - ~~Phase 2 – Project Phase~~
  - ~~Additional CARIS Study~~
- System & Resource Outlook
  - "The Outlook" Study
  - Economic Transmission Project Evaluation (ETPE)
  - Requested Economic Planning Study (REPS)

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Revised Economic Planning Process

- **System & Resource Outlook, "The Outlook"**
  - Performed in alternate years to the RNA
  - 20-year study of system and congestion
  - Identifies, ranks, and groups congested elements
  - Assesses the potential benefits of addressing the identified congestion
  - Provide information to developers and marketplace
- **Economic Transmission Project Evaluation (ETPE)**
  - Evaluation by the ISO of a regulated economic transmission project
    - Transmission projects seeking regulated cost recovery under NYISO Tariff
    - Eligibility threshold: Cost over $25M, benefit/cost ratio over 1.0, load payment saving over cost, 80% beneficiary vote
- **Requested Economic Planning Study (REPS)**
  - Study performed solely for informational purposes by the ISO at the request of a stakeholder or other interested party at their expense
    - Assumptions and scenarios customizable
    - Confidential except for basic information

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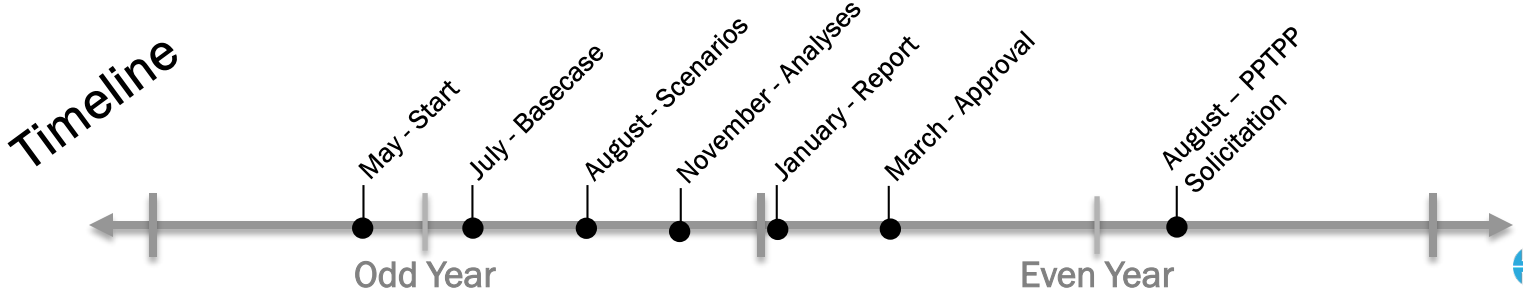
New Economic Planning Process Timeline

- On Friday April 9, 2021 the Federal Energy Regulatory Commission issued an order accepting NYISO Economic Planning tariff revisions, effective April 11, 2021, as filed with no changes
  - Docket# ER21-1074-000
  - See https://www.nyiso.com/regulatory-viewer/ > Recent Orders
- Economic Planning Manual update May 2021
- 2021 System & Resource Outlook will kickoff following manual revision approval



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Public Policy Transmission Planning Process (PPTPP)

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Public Policy Transmission Planning Process (PPTPP)

- **Two-year process performed in parallel with RNA/CRP**
- **Phase I: Identify Needs and Assess Solutions**
  - NYISO solicits transmission needs driven by Public Policy Requirements
  - PSC identifies transmission needs and defines additional evaluation criteria
  - NYISO holds Technical Conference and solicits solutions (transmission, generation, or EE/DR)
  - NYISO performs Viability and Sufficiency Assessment (VSA)
- **Phase II: Transmission Evaluation and Selection**
  - NYISO staff evaluates viable and sufficient transmission solutions and recommends the more efficient or cost-effective solution
  - Stakeholder review and advisory votes at BIC and MC
  - NYISO Board may select a transmission solution for purposes of cost allocation and recovery under the NYISO Tariff

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Long Island Offshore Wind Export Public Policy Need

- **"The CLCPA constitutes a Public Policy Requirement driving the need for:**
  - Adding at least one bulk transmission intertie cable to increase the export capability of the LIPA-Con Edison interface, that connects NYISO's Zone K to Zones I and J to ensure the full output from at least 3,000 MW of offshore wind is deliverable from Long Island to the rest of the State; and
  - Upgrading associated local transmission facilities to accompany the expansion of the proposed offshore export capability.
  - Ensure no transmission security violations, thermal, voltage or stability, would result under normal and emergency operating conditions"

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Long Island Offshore Wind Export Schedule

- August: NYISO will solicit Public Policy Transmission Projects and Other Public Policy Projects
- 30 days after solicitation: Developer qualification due date
- 60 days after solicitation : Developers submit required project information
  - See Section 3.4 of NYISO Public Policy Transmission Planning Process Manual for details

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Interregional Coordination

- **Through the NYISO's Transmission Interconnection Procedures, the NYISO also coordinates with neighboring regions to identify the impact, if any, of the Public Policy Transmission Projects on the neighboring regions**
  - System Impact Studies have been completed for the selected Western NY and AC Transmission projects
  - Facilities Study has been completed for the selected Western NY project
  - Facilities Studies are being performed for the selected AC Transmission projects to finalize the Network Upgrade Facilities including the upgrades to address New York-New England transfer degradation

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Stakeholder Material

- The NYISO Comprehensive System Planning Process is regularly discussed at the Electric System Planning Working Group (ESPWG) and Transmission Planning Advisory Subcommittee (TPAS).
  - https://www.nyiso.com/espwg
  - https://www.nyiso.com/tpas
- Study documentation is available at:
  - https://www.nyiso.com/cspp

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Questions?

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Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

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